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Lunch meal deals contribution to overconsumption and use of the intervention ladder models to examine stakeholders' potential actions to reduce calorie content

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ABSTRACT

This study examines the degree to which retailers' lunch meal deal promotions meet the UK government's One You campaign recommendation of 600 kcal for lunch. In parallel, the government are encouraging companies to reduce the calorie content of food and banning promotions encouraging overconsumption. Public policy intervention ladder models are used with upstream social marketing to consider how these government actions might affect companies and consumers' freedom of choice. A census of the calories of lunch meal deal items in five stores was conducted to determine the degree to which they met the 600 kcal recommendation. 23% of lunch meal deals exceeded the 600 kcal guideline, and on average contained 10% more calories. Actions to reduce calorie content and their impact on stakeholders' freedom are considered.

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Calories; lunch meal deals; intervention ladder; One You campaign

Introduction

The lunch meal deal enables consumers to purchase a main, snack and drink at a cheaper price than when purchased separately. This promotion may be encouraging overconsumption and contributing to obesity in the UK where 28% of adults are obese (Baker, 2021). Within the food choice environment, consumers' purchase decisions are influenced by the actions of upstream stakeholders e.g. the government, companies, trade associations (Gordon, 2013). One element of the UK government's strategy for tackling obesity is to reduce consumers' calorie intake. Their One You campaign, specifically the 400-600-600 element, aimed to encourage adults to consume 400 calories for breakfast, 600 for lunch and 600 for dinner with a couple of 200 calorie snacks (National Health Service, n.d.). According to the intervention ladders which focus on the impact of upstream public health interventions on the public's freedom, this UK government campaign directly informs and educates consumers, enhancing their ability to make a healthy choice within the 600 kcal recommendation (Department of Health and Social Care, 2017; Griffiths & West, 2015; HM Government, 2016; Nuffield Council on Bioethics, 2007). Simultaneously, the UK government are encouraging companies to voluntarily take action to reduce the calorie content of commonly eaten foods by 20% by 2024 (Department of Health and

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Social Care, 2018; Public Health England, 2018). They are also banning promotions encouraging overconsumption from October 2023 (Department of Health and Social Care, 2018, 2021, 2022a). Although the promotions ban does not currently include lunch meal deals, research found that 45% of respondents thought they should be banned (Department of Health and Social Care, 2021). The intervention ladders focus on the impact of government actions on consumers; this principle can be extended and combined with upstream marketing to consider the restrictiveness of government actions on companies and how companies' actions subsequently affect consumers.

This paper examines the degree to which companies' current use of the lunch meal deal promotion assists consumers in meeting the UK government recommended 600 kcal intake target for lunch and contributes to the UK government's aim to reduce calorie consumption. It also examines how the intervention ladders and upstream social marketing can be used to consider the effect of different government actions on companies, i.e. manufacturers and retailers, when aiming to provide less calorific lunch meal deals.

The remainder of the paper will discuss the intervention ladders, upstream social marketing and the UK government's interventions in relation to calorie reduction on consumers, and on manufacturers and retailers, the census methodology used to examine the calorie content of lunch meal deals, the results, and a discussion of how the stakeholders can work together towards public health objectives.

Models of government action for public health

It is acknowledged that consumers' decisions are shaped by their environment. Bronfenbrenner's (1977, 1979) ecological systems theory suggests that there are four networks of systems – the micro-, meso-, exo- and macrosystem that influence human behaviour. While the micro- and mesosystems are focused on the relationship between the individual and their network of immediate settings, the exosystem includes the influence of structures such as work, mass media, government agencies, the distribution of goods and services, and communication and transport facilities and the macrosystem includes the influence of culture, political culture and the national economy. In addressing obesity, various stakeholders in the exo- and macrosystem such as retailers, manufacturers, farmers, trade associations, politicians, and educators are shaping consumers' food purchase decisions. The government and manufacturers and retailers operate upstream from consumers, and social marketing can be used to consider how their actions can be influenced to create a healthier food choice environment, which changes the drivers of individual consumer behaviour to lead to a positive social outcome, i.e. a reduction in obesity (Gordon, 2013). There is an important distinction between upstream and downstream change; changing the environment downstream, i.e. through actions aimed at consumers, may result in the perceived removal of voluntary elements of behaviour change, e.g. banning smoking in public places. Changing upstream behaviour, i.e. through actions aimed at retailers and manufacturers, may lead to consumers having freedom downstream (Hoek & Jones, 2011). The government through its actions aimed at manufacturers and retailers can positively affect the food choice environment for consumers further downstream, and subsequently reduce obesity.

The government can bring about change for individuals through various policy actions outlined in two intervention ladder models (See [Table 1](#)). The intervention ladder,

Table 1. The actions of the intervention ladder and balanced intervention ladder.

Intervention Ladder (Nuffield Council on Bioethics, 2007)	Balanced Intervention Ladder (Griffiths & West, 2015)
Eliminate choice - entirely eliminate choice, e.g. compulsory isolation of people with infectious disease	+5 Collective self-binding – democratically voting on actions, e.g. a community voting to stop selling alcohol
Restrict choice – restrict options available, e.g. remove unhealthy ingredients from foods	+4 Enable choice – includes actions enabling change, e.g. participate in a programme to stop smoking
Guide choices through disincentives – e.g. tax on alcohol	+3 Ensure choice is available - e.g. require menus to contain options suitable for people seeking a healthy choice
Guide choices through incentives - e.g. tax benefits for participating in a cycle to work scheme	+2 Educate for autonomy – enabling people to make healthier decisions
Guide choices through changing the default policy -e.g. provide salad as standard side dish	+1 Provide information – educating about health issues
Enable choice – enable individuals to change their behaviour, e.g. provide cycle lanes	0 Guide choices through changing the default policy, e.g. salad as the default side dish rather than chips
Provide information – inform and educate	0 Do nothing or monitor
Do nothing or monitor the situation	-1 Guide choices through incentives - e.g. tax benefits for participating in a cycle to work scheme
	-2 Guide choices through disincentives - e.g. tax on alcohol
	-3 Restrict choice – e.g. removing ingredients from foods
	-4 Eliminate choice – e.g. compulsory isolation for people with an infectious disease

developed by the Nuffield Council on Bioethics in 2007, depicts various public policy actions according to the degree to which they infringe on individuals' freedom, with Providing Information infringing freedom the least and Eliminating Choice infringing freedom the most (Nuffield Council on Bioethics, 2007). It is further developed by Griffiths and West (2015) into the balanced intervention ladder which depicts negative actions, e.g. Eliminating Choice, as restricting individuals' freedom and positive actions, e.g. Collective Self Binding, as enhancing individuals' freedom. With these models, the government has a baseline perspective of what is right for the population but allows individuals the freedom to opt out at low cost and with relative ease. Ideally, public health actions are introduced with the public's consent and are not coercive, intrusive or conflicting with individuals' values (Nuffield Council on Bioethics, 2007). The intervention ladder has been used to identify context specific actions for promoting behaviours, e.g. handwashing (Clark et al., 2018); the acceptability of various types of interventions in different contexts, e.g. promoting physical activity (McGetrick et al., 2019), reduction of sugar sweetened beverages (Bélanger-Gravel et al., 2019), in the promotion of healthier ready meals (Hillier-Brown, Summerbell, Moore, Routen, et al., 2017, Hillier-Brown, Summerbell, Moore, Wrieden, et al., 2017); to different populations, e.g. adolescents (Stok et al., 2016), adults (Bélanger-Gravel et al., 2019; McGetrick et al., 2019), policy influencers (McGetrick et al., 2019), and food outlets (Hillier-Brown, Summerbell, Moore, Routen, et al., 2017, Hillier-Brown, Summerbell, Moore, Wrieden, et al., 2017). However, there is less research utilising the balanced intervention ladder.

Government intervention policies aim to help consumers make better decisions about food in relation to their health. Consumers, according to neoclassical economics, are assumed to be rational decision makers who actively search for information and consider the costs and benefits before making a choice (Reisch & Zhao, 2017), but it is recognised that humans do not make perfectly rational decisions due to cognitive constraints (Simon, 1956). A variety of

biases, e.g. anchoring and status quo bias, and heuristics, e.g. availability and salience, are utilised which can lead to decisions which do not always serve the consumers' interest (Luth, 2010). In a food context, therefore, consumers often 'irrationally' ignore nutritional information, making a series of decisions which may lead to obesity (Arno & Thomas, 2016).

The government want to positively influence consumers' actions but do not want to restrict their freedom through their policy interventions. Research has identified the concept of nudges, which are interventions that direct individuals in a certain way but maintain their freedom of choice (Thaler & Sunstein, 2008). Both the intervention ladder models have a number of actions which could be perceived as nudges, e.g. Guide Choice through Changing the Default, or could be adapted to encompass the concept. They also contain a number of actions that are not nudges, e.g. the use of incentives and disincentives and the restriction and elimination of choice, which are not maintaining consumers' freedom of choice. Nudges are useful when decisions are difficult and rare, there is no instant feedback, and information is difficult to understand (Thaler & Sunstein, 2008). They are used by the UK government to change public health behaviour; for example, to increase organ donation the default option was changed from opt in to donate to opt out to not donate (Department of Health and Social Care, 2020a), encouraging the use of e-cigarettes to give up smoking (Public Health England, 2015).

The intervention ladders focus on the effect of government action on the public, they do not consider the effects of upstream social marketing, i.e. government actions on companies' freedom or the subsequent effect of the companies' actions on individuals' freedom. The UK government use various interventions with mixed success to encourage companies to consider public health, including laws banning certain ingredients (Restrict Choice); the Soft Drink Industry Levy (SDIL) (Guide Choices through Disincentives); the use of standard Front-of-Pack (FoP) labels (Provide Information) (Department of Health, 2016; Department of Health and Social Care, 2017, 2018; HM Government, 2016; HM Treasury, 2018). Companies' response to UK government actions, whether positive or negative, affects the food choice environment, i.e. the products made, their distribution, price and promotion, and their primary concern is often generating profit and satisfying shareholders, rather than supporting the government's public health agenda. The UK government need to work with companies to facilitate actions which are mutually beneficial and contribute to improving public health.

The UK government's One You campaign and lunch meal deals

The UK government plan to tackle obesity contains actions targeting both the public and companies. The 2016 UK government plan aimed to reduce consumers' calorie intake through interventions such as the One You campaign. For manufacturers and retailers, it encouraged voluntary calorie reduction. It also suggested a potential ban on certain promotions, which has subsequently led to a ban on multi-buy promotions which is to come into force in October 2023, but it currently does not include lunch meal deals (Department of Health and Social Care, 2022a). These interventions and their potential effect on the various stakeholders' freedom are discussed further below in relation to the lunch meal deal.

The UK government's One You campaign to reduce consumers' calorie intake and the lunch meal deal

The UK government's 400-600-600 calorie guideline element of the One You campaign suggested that adults should distribute their calorie intake across the day, with 400 calories for breakfast, 600 calories for lunch and 600 calories for dinner, a total of 1,600 (Public Health England, 2016)¹. The guideline aimed to reduce the 200–300 extra calories the average adult is consuming every day which is contributing to weight gain and obesity (Knapton, 2018). The 600 kcal guideline for lunch was useful as most consumers are familiar with calories (Public Health England, 2018), 23.6% of UK consumers keep track of the calories they consume (Euromonitor, 2019) and 41% of UK consumers consider calories when selecting weekday lunches (Mintel, 2015). This intervention informed and educated consumers and enhanced their freedom in making dietary choices. The 600 kcal guideline provided an anchor, enabling consumers to compare lunch offerings in relation to this figure to determine whether they would be consuming too many calories or not. It was not intrusive or forcing people to change, so it was likely to be acceptable to consumers (Diepeveen et al., 2013).

With regards to lunch meal deals, as previously mentioned some people monitor calories when making lunch purchase decisions, and the majority (67%) want the promotion to include one of their five fruit and vegetables a day (Mintel, 2019a). There are various other reasons that people purchase lunch meal deals, including to save money (Chandon et al., 2000; Jarvela et al., 2006; Mintel, 2019a, 2021; Singla, 2010), for convenience (Chandon et al., 2000; Mintel, 2015, 2021), to treat themselves (Mintel, 2015), or to try something new (Chandon et al., 2000; Mintel, 2021). Recently the eating out of home sector made up 20–25% of an adult's energy intake (Public Health England, 2018), with lunch being purchased outside the home at least once a week from a retailer by 40% of people (Mintel, 2021). It is important, therefore, to determine how the lunch meal deal is contributing to calorie intake.

Only a third of people think the UK government is responsible for taking action against obesity, and some consumers are not fully aware of how the government influences their food choice environment through interventions targeting companies (Public Health England, 2018). Companies are assigned more responsibility for obesity, with over half of consumers (54%) thinking manufacturers are responsible and just over a third (37%) thinking retailers are responsible (Public Health England, 2018). Many consumers are aware that companies create the food choice environment and are responsible for the products (e.g. Herrick, 2009) pricing (e.g. Jarvela et al., 2006; Singla, 2010), promotions (e.g. Hobbs, 2016; Nakamura et al., 2015) and distribution strategies used (e.g. Giskes et al., 2011). They want companies to take further action to create a healthier food choice environment, including greater provision of low-calorie options, especially for snacks, and greater promotion of healthy foods rather than unhealthy foods (Public Health England, 2018).

The UK government's company calorie reduction interventions in the lunch meal deal context

The UK government aims to reduce the amount of calories in food by 20% by 2024 through companies' voluntary action (Public Health England, 2020). This action is targeting food consumed inside and outside of the home, including lunch meal deals (Public Health England, 2018). It is also banning promotions which encourage overconsumption,

e.g. Buy One Get One Free (Department of Health and Social Care, 2018, 2020b). The voluntary reduction of calorie content is less restrictive for companies than banning certain promotions according to the intervention ladders.

UK government voluntary actions in relation to health vary in their success (Herrick, 2009). The government's work with companies in on the go retail have reduced calorie content by 9.7% per portion between 2015–19 (Public Health England, 2020). The current voluntary reduction of sugar has created a decrease of only 3% on average across all food categories (Public Health England, 2020). In the past, the salt content was voluntarily reduced by 50% in some foods (Public Health England, 2018) but this has stalled in recent years (National Food Strategy, 2021). In contrast, legislative, financial disincentives which impose significant restrictions on companies' freedom have been used to greater effect. The Soft Drinks Industry Levy (SDIL) introduced in April 2018 taxed companies according to their products' sugar content (Department of Health and Social Care, 2017, 2018; HM Government, 2016; HM Treasury, 2018). Companies were given two years warning prior to the tax's introduction, enabling them to reformulate their products (HM Treasury, 2018), and it has achieved a 43.7% reduction in the total sugar content per 100 ml of drinks that were subject to the levy during 2015–19 (Public Health England, 2020). This action's success has led to calls for an excess calorie levy (Gilbert, 2019), and more recently a sugar and salt reformulation tax (National Food Strategy, 2021). Some companies are very gradually changing the default food environment for consumers without adversely affecting their own freedom, but further calorie reduction is required.

A company's decision to voluntarily reduce calorie content will be influenced by various factors. The financial costs may be a primary consideration. Product reformulation which may include removing or reducing certain ingredients, replacing an ingredient with a substitute or using technology to mimic the lost ingredient (Department of Health and Social Care, 2017; Webster, 2009) can cost anywhere between £5,000 - £450,000, which may be prohibitive for some companies (Food Standards Agency, 2010). Portion sizes can be reduced but this may not appeal to companies as it reduces their profit margins (Wansink, 2004). Companies decide not to implement government recommendations for a variety of reasons. They may be committed to other food related issues, e.g. food safety (Pulker et al., 2018). Many companies may believe that public health is not their concern and focus on legally satisfying their customers' and shareholders' needs (Carlisle & Hanlon, 2014; Marmot, 2012). Companies may believe that the government has no right to define health (Coggon, 2018), and think obesity is due to consumers' lack of activity rather than their products (Herrick, 2009). There are also companies that think it is important to operate in a free market shaped by competitors and consumers (Baum & Fisher, 2014). While a free market has led to many companies' product portfolios containing a range of 'healthy' and less healthy brands (Herrick, 2009), it has also led to the creation of high fat, salt, and sugar products, high energy density products, and increasing portion sizes, which contribute to obesity (Egger & Swinburn, 2010; Monteiro et al., 2018; Nuffield Council on Bioethics, 2007; Swinburn et al., 2011).

The UK government intend to use legislative action to ban promotions such as Buy One Get One Free, and unlimited refills, which encourage the consumption of less healthy products (Hawkes, 2009a) and larger portion sizes (Department of Health and Social Care, 2018; Robinson et al., 2018). Research has found that upsizing, which is not being banned, led to a 23% increase in energy intake, for only a 12% increase in price (Campbell-Smith

et al., 2002). Lunch meal deals are perceived as encouraging overconsumption (Department of Health and Social Care, 2018). Companies also use promotions to encourage healthy eating, although there are mixed findings about the degree to which this occurs. While Nakamura et al. (2015) found healthy and unhealthy products to be promoted in equal numbers in the UK, the consumer organisation Which? (Hobbs, 2016) found that 53% of promotions were for unhealthy products. The percentage of promotions within product categories varied, with 52% of confectionery items being on sale as opposed to just 30% of fresh fruit and 30% of vegetables (Hobbs, 2016). The UK government plan to ban certain promotional offers would be restrictive and would negatively impact companies; instead, they need to work with retailers to encourage the use of sales promotions such as the lunch meal deal to encourage healthy eating. The banning of promotions such as the lunch meal deal would restrict consumers' choice but the use of promotions to encourage healthier purchases, although slightly restrictive (Griffiths & West, 2015; Nuffield Council on Bioethics, 2007), might be acceptable to consumers if perceived as being effective, having moral value, and being justified due to market conditions (Diepeveen et al., 2013), and/or unintrusive (Nuffield Council on Bioethics, 2007).

The lunch meal deal is a commonly used promotion. As part of its plan to tackle obesity, the UK government in its position upstream has been Providing Information, to educate consumers downstream about the 600 kcal guideline for lunch, enhancing their freedom to choose healthy food. They are simultaneously encouraging companies to voluntarily reduce calories and planning to ban promotions to create a healthier food environment for consumers. Despite the UK government's actions, upstream companies' current lunch meal deals may be encouraging overconsumption, therefore it is necessary to determine to what extent they are meeting the 600 kcal guideline and if they are not, consider what government interventions could be utilised and how this might impact their freedom, and subsequently consumers'.

The research objectives are to examine,

- (1) the frequency with which retailers' lunch meal deals exceed the recommended 600 calories,
- (2) the degree to which the retailers' deals are exceeding the recommended 600 calories,
- (3) the calorie content of the lunch meal deal components and their contribution to the 600 calories,
- (4) the use of upstream social marketing and the intervention ladders in identifying the potential government actions around lunch meal deals, and their effects on downstream stakeholders, i.e. manufacturers', retailers' and consumers' freedom.

Methodology

Eight national chain stores who are major providers of lunch meal deals were identified; they included six supermarket chains and two high street retailers. Supermarkets have 80% of the market share for pre-packaged fresh sandwiches (Mintel, 2022). Thirteen branches across the eight different stores representing supermarket chains and high street retailers were purposively approached by one of the researchers. The branch

Table 2. The percentage of overweight and obese adults in the areas sampled and the wider determinants of health in comparison to England.

	East Staffordshire	Derby	NW Leicestershire	England
% Adults overweight or obese	65.7%	65.4%	70.9%	63.5%
% Average GCSE attainment (Average attainment 8 score)	45.7%	46.1%	42.9%	50.9%
% Employment	73.8%	75.4%	66.2%	75.4%

Compiled from data from the Office for Health Improvement and Disparities (2022).

managers were provided with an oral description of the research, an information sheet, consent form, and the opportunity to ask questions. The branch managers were reassured that neither the store nor branch would be identified. The documents were passed on to senior managers whose permission was required. Branch managers of five different national stores agreed to take part, this included three different supermarket chains and two different high street retailers. For convenience, the store branches sampled were in the counties of Staffordshire, Derbyshire and Leicestershire in England. Of the stores sampled, one of the high street retailers was a convenience sized store, three (two supermarkets and a high street retailer) were a standard size for the chain, and one supermarket was large. A field observation approach was taken. Across the five stores, the lunch meal deals comprised a main, a snack and a drink, and the price ranged from £3.00 to £3.50. In each store branch a census of all the products encompassed by the lunch meal deal that were available on the shelves was conducted. Data was collected between the hours of 10.00–19.00 pm over a week during June 2018. For each product within the lunch meal deal, the Front-of-Pack and Back-of-Pack nutritional information was photographed. Contextual information about the levels of obesity for adults in these areas and the wider determinants of health is provided in Table 2. It can be observed that in the counties sampled, the levels of obesity are higher than for England overall. The levels of educational attainment are lower across all three areas than they are for England overall, and the employment levels, while they are the same for Derbyshire as for England overall, the level is lower in East Staffordshire and North West Leicestershire.

With regards to the data, combinatorial analysis was used to identify all possible product combinations within each stores' lunch meal deals for the items observed. For each lunch meal deal combination, the total calories were calculated using a sum of the calories per serving (kcal) for each product in the combination. The total number of lunch meal deal combinations exceeding Public Health England's recommended 600 calorie intake for lunch was identified. The values of the highest and lowest calorie combinations and their respective percentages of the 600 kcal threshold were noted. The mean contribution of each component (main, snack and drink) and their sub-components to the 600 kcal recommendation were identified. ANOVAs were used to determine whether there were significant differences between the calorie content of the sub-components of the lunch meal deals' mains, snacks and drinks.

Findings

Consumers are faced with a vast number of potential combinations of lunch meal deal items (See Table 3). Overall, 23% of the lunch meal deal combinations exceeded the recommended 600 calories. The highest number of calories found in a lunch meal deal

Table 3. The percentage of lunch meal deal combinations exceeding the 600 kcal guideline sample and the highest and lowest calorie combinations.

	All Stores
No. of Lunch Meal Deal Products	614
Total No. (All Possible) Combinations	548,643
Combinations Exceeding 600 kcal (%)	23%
Calories of Highest Combination (kcal)	1,329
Calories of Highest Combination as % of 600 kcal	222%
Calories of Lowest Combination (kcal)	290
Calories of Lowest Combination as % of 600 kcal	48%

was 1,329 calories, 222% of the recommended 600 calorie intake, with the lowest being 290 calories, 48% of the recommended 600 calorie intake.

It can be observed from [Table 4](#) that the average lunch meal deal contained 110% of the 600 calories. The mean of the mains was 424 kcal making up 71% of 600 calorie limit. The mean of the snacks comprised 28% of the recommended 600 calories. The mean of the drinks was 69 kcal making up 12% of the 600 calorie limit.

The average calories varied significantly by type of main component (See [Table 4](#)). Triple sandwiches had significantly more calories than sandwiches ($p = .000$), wraps ($p = .000$) and salads ($p = .000$). The calorie content of the average triple sandwich alone constituted 109.5% of the recommended 600 calorie intake. Baguettes had significantly more calories than sandwiches ($p = .002$); their mean calorie content made up 88% of the recommended intake (see [Table 4](#)). Triple sandwiches and baguettes were limited in their availability and the number of varieties offered.

The availability of the snacks varied (see [Table 4](#)). Fruit was significantly less calorific than all the other snacks (crisps $p = .004$, chocolate bars $p = .002$, energy protein bars $p = .002$).

Table 4. The mean calories for the main's, snack's and drink's sub-components in the lunch meal deal and ANOVAs.

	Mean calories, SD, (n)	Mean calories as % of 600 kcal	ANOVA
Lunch meal deal	662	110%	
Main	424, 103, (134)	71%	
Sandwich	402, 75.0, (80)	67.1%	Welch 45.4 df 4, 21.6, sig. =.000
Triple sandwich	657, 42.2, (6)	109.5%	
Wrap	439, 80.0 (16)	73.2%	
Baguette	528, 50.4, (7)	88%	
Salad	399, 122.5 (27)	66.5%	
Snack	169, 70, (203)	28%	
Fruit	80.0, 71.5 (12)	13.3%	Welch 5.30, df 5, 63.1, sig. =.000
Crisps	181, 62.5 (57)	30.2%	
Chocolate bar	190, 44.1 (21)	31.7%	
Energy protein bar	164, 51.6 (47)	27.3%	
Savoury snack	158, 67.8 (38)	26.3%	
Sweet snack	183, 91.9 (32)	30.5%	
Drink	69, 66, (277)	12%	
Water	12, 21.3 (33)	2%	Welch 67.6, df 7, 42.9, sig.=.000
Juices	75, 52.5, (96)	12.5%	
Energy/caffeine	127, 76.1 (35)	21.2%	
Energy/caffeine diet	16, 17.1 (6)	2.7%	
Carbonated	44, 41.8 (47)	7.3%	
Diet carbonated	16, 17.1 (6)	2.7%	
Smoothie	143, 59.8 (32)	23.8%	
Tea	45, 66.3 (7)	7.5%	

= .018, savoury snacks $p = .036$, sweet snacks $p = .007$), constituting on average 13.3% of the recommended 600 calorie intake. A limited number of varieties of fruit were available. No significant differences were found between the calorie content of other snacks. Chocolate bars were the most calorific, constituting 31.7% of the recommended intake, very closely followed by sweet snacks and crisps (see [Table 4](#)). Crisps were ubiquitous and available in the greatest number of varieties. Savoury snacks and sweet snacks were available in a considerable number of varieties.

Significant differences were found in the calorific content of the various types of drinks (see [Table 4](#)). Water was significantly lower in calories than juices ($p = .000$), energy/caffeine drinks ($p = .000$), carbonated drinks ($p = .0010$), and smoothies ($p = .000$). Diet carbonated drinks were significantly lower in calories than energy/caffeine drinks ($p = .000$), carbonated drinks ($p = .000$) and smoothies ($p = .000$). Diet energy/caffeine drinks were significantly lower in calories than juices ($p = .000$) and smoothies ($p = .000$). Water, diet energy and diet carbonated drinks' calorie content constituted approximately 2–3% of the recommended 600 calorie intake (see [Table 4](#)). Smoothies and energy/caffeine drinks' calorie content made up over 20% of the recommended 600 calorie intake. Smoothies had a significantly higher calorie content than all the other drinks (except energy/caffeine drinks) ($p = .000$). Energy/caffeine drinks had a significantly higher calorie content than all the other drinks (water, diet energy, carbonated, diet carbonated $p = .000$, juices $p = .014$, tea $p = .01$). Juices, carbonated drinks and tea had a calorie content that was significantly lower than smoothies and energy/caffeine drinks but higher than water, diet carbonated and diet energy/caffeine drinks. Juices had a significantly higher calorie content than diet energy/caffeine drinks ($p = .014$) and carbonated drinks ($p = .004$).

Discussion

The discussion considers the frequency and degree to which retailers' lunch meal deals exceed the 600 kcal guideline, how the various components contribute to the 600 kcal, and it combines both the concept of upstream social marketing and the intervention ladders to consider the impact of government actions on both companies and consumers.

In the current context in the UK, the lunch meal deal is widely used and although the government is encouraging companies to reduce calorie content, they may or may not take action as it is voluntary. Companies may choose to take action for a variety of reasons, e.g. they may perceive public health as partially their responsibility, or they may see it as a profitable area. It is thought that the voluntary approach through the free market will lead to a gradual changing of the default policy, i.e. a general lowering of the calorie content over time. Indeed, this change may already be underway, as while Tedstone (2018) found that only a few companies provided a lunch offering meeting the 600 kcal guideline, 77% of the lunch meal deals in this study meet the 600 kcal guideline. However, the likelihood of overconsumption with a lunch meal deal presently remains relatively high, at 23%. The average lunch meal deal contains 10% more calories than the recommended 600 kcal and the highest calorie lunch meal deal contains double the recommended intake. Overconsumption has been found in other eating out-of-home contexts, including full-service restaurants (Robinson et al., 2018) and fast-food restaurants with upsizing deals (Campbell-Smith et al., 2002). As 40% of people are purchasing lunch

outside of the home at least once a week (Mintel, 2022), the relatively high likelihood of overconsumption is of concern.

The UK government did not specify that companies should meet the One You guideline of 600 kcal with their lunch meal deal promotions but they do provide guidance to the food industry to encourage them to voluntarily reduce the number of calories in products, reduce the portion size consumed on a single occasion, and encourage consumers to purchase lower calorie products (Public Health England, 2020). For the lunch meal deal, the 600 kcal content is achievable by excluding certain products from the promotion, and reformulating or reducing portion size, which are discussed in relation to upstream social marketing and the intervention ladders for the government, companies and consumers in the current context.

Within each lunch meal deal component category there were more calorific elements which the UK government could identify for companies as candidates for exclusion from the promotion (Provide Information). Within the main component, the calorific products were the triple sandwiches and baguettes, in the snack component these were chocolate bars, sweet treats and crisps, and in the drinks component these were energy drinks and smoothies. The voluntary exclusion of certain products, e.g. chocolate, sweet treats, and crisps from the snack component of the lunch meal deal, may not be acted upon by companies due to the products' popularity. Fruit was the lowest calorie snack offered but there were few fruit options available. The government could encourage companies (Provide Information) to increase the availability and variety of fruit in lunch meal deals. Retailers may be willing to do this as many already carry loose fruit and small pre-packaged fruit selections which could be readily included without restricting their freedom. For consumers, the exclusion of certain products may be perceived as either restricting their freedom or enhancing their freedom. For the 53% of people who use the lunch meal deal to incorporate a treat, the exclusion of certain products such as chocolate and crisps would be perceived as restrictive (Mintel, 2015). However, it may be perceived as creating an environment in which consumers can easily make healthy choices, especially as 41% of consumers were conscious of calories when selecting weekday lunches and 67% wanted the lunch meal deal to include a portion of fruit or vegetables (Mintel, 2015).

Reformulation of the most calorific components may be required to meet the 600 kcal lunch meal deal limit. The UK government Enable Choice for companies by providing programmes to assist with reformulation (UK Parliament Post, 2021). For companies, reformulation can be expensive (Food Standards Agency, 2010) and cost may prevent some from voluntarily taking this action, even those inclined to contribute to public health objectives. Retailers offer both their own brand and manufacturer brands within the lunch meal deals. As they often have a dual role as manufacturer and retailer, they can decide to reformulate products; as retailers they can exert their power over manufacturers to demand reformulation (Monteiro et al., 2018). The drinks in the lunch meal deal on average made up only 12% of the recommended 600 kcal which may be due to the SDIL, a reasonably restrictive UK government measure of Guiding Choice through Disincentive on the intervention ladders that has led to manufacturers reducing the sugar content. Companies can choose not to reduce sugar levels in their drinks and pay a higher level of tax so that there remains a degree of freedom. Energy drinks and smoothies were the most calorific, and the calorie content of some energy/caffeine drinks remains quite high

because sugar is perceived as an important component in these products (Mintel, 2019b). A number of calorific drinks including juices and smoothies are exempt from the tax and there is currently no indication of further tax measures on these products (HM Revenues and Customs, 2018). On the back of the success of the SDIL, there have been calls for the introduction of a calorie levy by non-governmental organisations (The Times, 2019), and more recently there has been a call for a sugar reformulation tax (National Food Strategy, 2021), but the UK government has said that there are no plans for such interventions (Bowden & Rowlett, 2021; The Times, 2019). For consumers, the reformulation of products to reduce calories is Guiding Choice through Changing the Default which is classed as slightly restrictive on the intervention ladder (Nuffield Council on Bioethics, 2007). This change may not be readily apparent or especially intrusive to consumers and may not be perceived as infringing their freedom (Diepeveen et al., 2013, Nuffield Council on Bioethics, 2007); the SDIL was supported by 70% of people (Pell et al., 2019).

The UK government have recommended reducing portion size to lower calorie content (Public Health England, 2018, 2020), stating that this would cut energy intake by 16% (Public Health England, 2018). Companies could take this approach for the more calorific components in the lunch meal deal, e.g. baguettes, chocolate bars, energy drinks; this might be perceived as Guiding Choices through Changing the Default. Ideally, the size of the lunch meal deal components could be reduced gradually to accustom consumers to eating smaller portions and reduce the likelihood of them purchasing an additional product or a substitute product which may increase their calorie intake (Public Health England, 2018). In the food industry, portion sizes have increased over time (Chandon, 2013), partially due to companies obtaining better margins from larger pack sizes (Wansink, 2004); consequently, some companies may be reluctant to reduce portion sizes, especially gradually. Consumers may perceive the resizing of products and consequent Guiding of Choice through Changing the Default as a positive action, helping them to make healthier decisions. Public Health England (2018) found almost half (49%) of people felt the portion sizes of unhealthy snacks and drinks should be reduced. The majority of people purchase a lunch meal deal to save money (Mintel, 2015), so maintaining value for money for smaller products is vital as consumers do not want to be penalised by having to pay more for a smaller, healthy choice. Tesco received complaints when it reduced the size of the Coca Cola and Pepsi in their lunch meal deal from 500 ml to 375 ml without changing the price of the lunch meal deal (Metro, 2018).

As calorie reduction is voluntary, it enables companies to take no action if they believe a free market will result in healthier consumption (Baum & Fisher, 2014), that the government should not be imposing their idea of healthy eating on consumers (Coggon, 2018), or that consumers' obesity is due to their lack of activity (Herrick, 2009). For consumers to avoid overconsumption in the current context when purchasing a lunch meal deal, they would have needed to be aware of the One You campaign 600 kcal guideline, which ideally would have been promoted by both the government and retailers. This Provision of Information would enhance consumers' freedom through enabling them to easily make a healthier choice and reduce their cognitive processing effort for each lunch meal deal purchase. Currently, purchasing a lunch meal deal that meets the 600 kcal guideline requires substantial effort, and conflicts with consumers' need for speed and convenience (Chandon et al., 2000; Mintel, 2015).

In addition to reducing the calorie content of products, the UK government are banning certain promotions which encourage overconsumption of unhealthy products (Department of Health and Social Care, 2018, 2021, 2022a). Lunch meal deals are currently not going to be banned but they are encouraging overconsumption, reinforcing previous research which found consumers are tempted by lower prices for larger portions (Stoeckl & Luedicke, 2015), and consume more when offered larger portions (Public Health England, 2018; Zlatevska et al., 2014). A ban on lunch meal deals would restrict companies' promotional choices and reduce their freedom which they may find unacceptable. It would also be seen as a restriction of choice by consumers who use this promotion to save money (Griffiths & West, 2015; Mintel, 2015). Banning this promotion might reduce calorie intake as some consumers would no longer buy the three lunch meal deal components at full price.

The above discussion illustrates the necessity for the intervention ladders to consider not only how the government's interventions affect consumers but also how those aimed at companies subsequently affect consumers i.e. upstream social marketing. Figure 1 identifies how for each of the primary stakeholders considered in this research, i.e. the UK government, companies and consumers, the implementation of interventions will affect their degree of freedom. In addition, Figure 1 extends the intervention ladders and

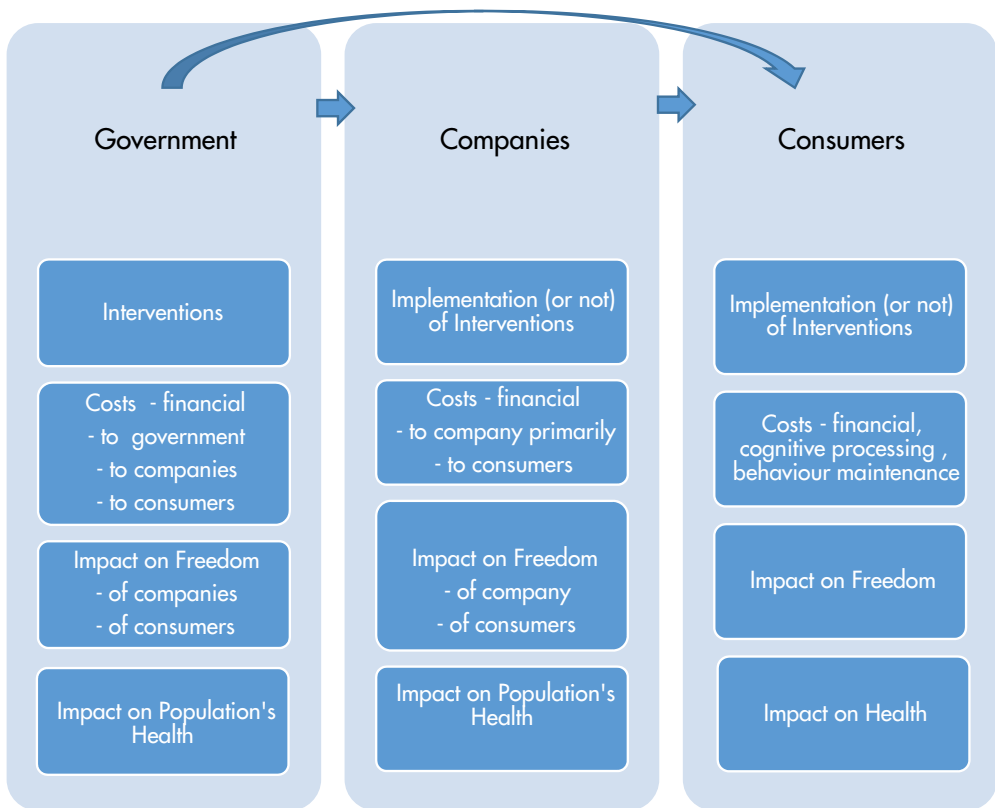


Figure 1. An overview of the primary stakeholders and factors for consideration when implementing interventions.

considers the financial costs, and the degree of cognitive processing and behaviour maintenance required by consumers and the impact on public health. It is acknowledged within the category of companies in [Figure 1](#) that manufacturers and retailers will affect each other’s actions in relation to government interventions. Indeed, Wood et al. (2021) found dominant manufacturers in the food industry utilised six strategies to strengthen their power: they dominated smaller competitors and reduced competition with similar sized competitors; increased the barriers to market entry; increased buyer power over companies upstream; increased supplier power over companies downstream; retained counteracting market disruptors; and used informational asymmetries in their customer relationships. Retailers may also use some of these strategies. As a result, dominant companies can shape the food choice environment in terms of the product offering and the ingredients used to make the products, and produce profits to be used for lobbying and marketing (Wood et al., 2021).

Through applying the intervention ladders and upstream social marketing [Table 5](#) considers the current context and two scenarios, Option A and Option B, which vary in the use of voluntary and legislative government action and how they might facilitate calorie reduction and affect the restrictiveness for both the companies and consumers (Gordon, 2013; Griffiths & West, 2015; Nuffield Council on Bioethics, 2007). The discussion below

Table 5. The current context and Options A and B based on the implementation of a 600 kcal guideline and the use of lunch meal deals and the impact on stakeholders.

Type of Lunch Meal Deal	Current Context	Option A	Option B
Calorie limit	No limit.	600 kcal meal options (Voluntary) No limit options.	Only 600 kcal options (Legislation)
	Provide Information to companies and consumers	Provide information to companies and consumers	Eliminate Choice for companies
Availability of lunch meal deal	Available.	Available for 600 kcal combinations only. Restrict Choice for companies Guide Choice through Incentive for consumers.	Available.
Government			
Degree of calorie reduction	Minimal	Reasonable	Higher
Costs to monitor	Minimal	Low	High
Manufacturers and Retailers			
Degree of freedom	More	Slightly less	Less
Reformulation and resizing costs	No costs	Potential costs	High costs
Consumers			
Degree of freedom	More	Slightly less	Potentially two contrasting perceptions of less and more freedom.
Financial incentive to purchase 600 kcal lunch	No - Financial incentive only	Yes - Financial incentive attached to 600 kcal	Financial incentive only. 600 kcal default
Level of processing and action required	High	Medium	None
Maintenance of behaviour required	Yes	Yes	No

focuses firstly on how UK government actions affect companies' freedom and costs and how the implementation (or not) subsequently affects consumers' freedom and their financial and cognitive processing costs and behaviour maintenance.

The current context in which the UK government is encouraging voluntary calorie reduction (Providing Information) and allowing the use of promotions is the least restrictive for all stakeholders, i.e. companies and consumers. Companies do not have to take action to reduce calories and are freely using the lunch meal deal. Any costs due to reformulation and size reduction may be minimal; if there are costs, these will be due to their own choice. Voluntary calorie reduction has led to a small calorie reduction in products (Public Health England, 2020) but it has also given companies the opportunity to create products which are high in fat, sugar and salt (Egger & Swinburn, 2010; Monteiro et al., 2018; Nuffield Council on Bioethics, 2007; Swinburn et al., 2011). The voluntariness of actions while providing consumers with substantial freedom has created a food choice environment in which it is difficult and time-consuming to identify healthy options. For consumers to choose a lunch meal deal meeting the 600 kcal guideline, substantial cognitive processing is necessary. Heuristics and biases provide consumers with decision-making shortcuts which may detrimentally affect the healthiness of their decisions, and these may be repeated over numerous occasions.

In Option A, the UK government encourages companies to provide lunch meal deals meeting the 600 kcal guideline and to use the promotion only with combinations meeting the guideline, incentivising a lower calorie intake. The government would need to monitor this scenario to ensure the lunch meal deal is being used appropriately. For companies, the Option A scenario is slightly restrictive as they are being encouraged to voluntarily provide 600 kcal lunches (Provide Information) and use the lunch meal deal only for those meeting the 600 kcal guideline (Restrict Choice). Companies' free use of the lunch meal deal would be curtailed, which would have financial implications through the exclusion of certain products from the promotion and costs incurred due to reformulation, and resizing. In this scenario, rather than being used to encourage overconsumption, lunch meal deals would be used to incentivise consumers to make healthier choices (Hawkes, 2009a, 2009b). The UK government and retailers would need to collaborate to educate consumers about the 600 kcal guideline and promote the lunch meal deals meeting the remit. Consumers have less product choice encompassed by the promotion but may be incentivised to consume less calories and obtain value for money, as mentioned previously (Mintel, 2015). In this scenario, consumers are free to opt out of choosing a 600 kcal lunch but the financial penalty for doing so is a restriction of freedom in addition to the restriction of products included in the lunch meal deal (Griffiths & West, 2015; Nuffield Council on Bioethics, 2007). The provision of lunch meal deals which meet the 600 kcal guideline may not necessarily be perceived as an infringement on freedom by consumers but rather as enhancing freedom due to a reduction in the cognitive effort required to select a healthy lunch. Consumers would be able to readily identify and select a 600 kcal lunch and repeat this behaviour to avoid overconsumption. Overall, it might be anticipated that this option would lower consumer calorie intake more than the current context.

In Option B, the UK government legislation would require companies to only provide lunch meal deals meeting the 600 kcal guideline (Eliminate Choice) and allow the use of lunch meal deals as a financial incentive. This option would require monitoring to ensure

the 600 kcal guideline was adhered to. This would be a very restrictive environment for companies who would face high reformulation and resizing costs to ensure that they meet the guideline. The government would need to work with them to balance company considerations, i.e. costs to implement and effect on profit, against the government's goal of improving the overall health of the public. The provision of only 600 kcal lunch meal deals is potentially quite restrictive for consumers due to choice reduction through product exclusion, smaller portions and reformulation (Griffiths & West, 2015; Nuffield Council on Bioethics, 2007). The retention of the lunch meal deal means consumer choice is maintained for those looking for value when purchasing lunch (Mintel, 2019a). Some consumers may perceive this purchase environment as less restrictive; all of the lunch meal deals available meet the required 600 kcal guideline, so consumers may be less confused (Mick et al., 2004) and need to exert less cognitive effort to identify a suitable calorific option, leading to benefits in long-term health. This food choice environment facilitates the ready maintenance of consumers' healthier choices. Consumers may be more accepting of such a restrictive environment if it is perceived as effective in improving the healthiness of the food sector through discouraging companies' further development of high fat, salt, and sugar products, high energy density products, and larger portion sizes that have occurred in the free market (Egger & Swinburn, 2010; Monteiro et al., 2018). It may also be more acceptable if it is improving the health of the population and reducing the £6.1bn that obesity costs the National Health Service every year (Diepeveen et al., 2013; Public Health England, 2017). This option is likely to lead to a greater reduction in the public's calories intake than the current context and Option A.

The theoretical contribution lies in combining the intervention ladders with upstream social marketing. This approach facilitates a broad overview of the primary stakeholders, i.e. government, companies and consumers, and how interventions and their costs impact on each other's freedom and health, as shown in Figure 1. This perspective has also provided a framework for examining holistically the potential effects of specific government actions on companies and consumers as demonstrated through discussion of the current context and the two theoretical scenarios. It is clear that the intervention ladders alone are insufficient for guiding the government on the types of interventions to be taken. Government need to take into account stakeholders, i.e. companies and consumers, at different points upstream and downstream and examine how their policy interventions affect their freedom, costs and the population's health differentially, directly and indirectly, in order to arrive at their decision. The UK government set overall targets, such as the reduction of calorie intake, and use multiple interventions aimed at different stakeholders, e.g. the One You campaign for consumers, and voluntary calorie reduction and the SDIL for companies. Both the effect of each intervention and the interactions between them in relation to companies and consumers need to be taken into account, an aspect not considered by the intervention ladders. The government, when considering interventions, needs to assess how both companies' and consumers' freedom is impacted and how to balance their freedom. The UK government needs to determine how interventions affording companies various degrees of freedom affect consumers, e.g. the voluntary reduction of calorie content has only led to a reduction of 9.7% per portion whereas SDIL legislation has led to 43.7% reduction in sugar content per 100 ml (Public Health England, 2020). The voluntary action, although maintaining both parties' freedom, is less effective than the SDIL. Through combining the intervention ladders with the

perspectives of upstream social marketing, consideration can be given as to how to balance the freedom, costs, etc. of both companies and consumers to achieve public health objectives. A substantial number of consumers think manufacturers (54%) and retailers (37%) are responsible for obesity and may be more accepting of restrictive interventions targeting companies, such as banning certain promotions even when the outcome is restrictive for them, if the intervention is less intrusive (Nuffield Council on Bioethics, 2007; Stok et al., 2016), effective and/or justified due to market conditions (Diepeveen et al., 2013). The categorisation of the interventions targeting companies needs to be refined. The delineation of voluntary and legislative interventions would be useful as they have different costs and effects on companies and consumers which will influence governmental deployment. Both the UK government and companies are aiming to influence consumer behaviour, often with differing objectives. Government interventions in relation to the lunch meal deal, e.g. Providing Information, are maintaining consumers' freedom. In contrast, companies are using the lunch meal deal as an incentive to encourage purchase and possibly overconsumption. Companies are also using nudges, e.g. end-of-aisle displays in supermarkets, to encourage purchase. These stakeholders need to work together to develop actions, including nudges, which are mutually beneficial, as outlined in Option A and B.

The main limitation of the research is the fact that the census of the lunch meal deals was collected on one occasion at one time in specific stores. This may have led to certain food items being sold out or not being available in the stores selected.

Future research could examine companies' perceptions of the impact of the various UK government actions in the aforementioned scenarios. It could investigate how product exclusion, reformulation and resizing could be utilised, and determine the acceptability of further government actions to encourage calorie reduction, such as a calorie levy. Future research could ascertain consumers' awareness of the 600 kcal guideline for lunch, and investigate their attitudes both to the lunch meal deal only being applied to product combinations meeting the 600 kcal recommendation and to all available lunch meal deals meeting the 600 kcal recommendation and how they impinge on their freedom. It could examine consumers' perceptions of the calorie content of the various components and investigate how they would alter the product offering to make it less calorific and more appealing. Further ethnographic research could be undertaken to examine consumers' purchase and consumption of lunch meal deals over a specific time period to understand the financial, health and social determinants of their decisions.

Note

1. Although information about the One You campaign is provided on various health authorities' websites, the Better Health campaign was launched on 4th January 2021 (Public Health England, n.d.), which provides overall calorie guidelines of 2,500 for men and 2,000 women (Department of Health and Social Care, 2022b).

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